



# Missouri Nutrient Loss Reduction Strategy 2018 Update

**The Missouri Nutrient Loss Reduction Strategy** uses an adaptive approach in order to reduce nutrient pollution from both point and nonpoint sources. The strategy proposes a set of recommended actions that aim to improve water quality in Missouri while also reducing nutrients transported downstream to the Gulf of Mexico.



## Resources

- The Missouri Parks, Soils and Water Sales tax (1/10th of 1 percent) was first approved by the Legislature in 1984 and has been renewed by voters four times.

Funds are split equally between state parks and soil and water conservation programs. The most recent passage was in 2016 by an 80 percent approval, and it passed in all 114 counties. In fiscal year 2018, \$40 million of tax funds went toward conservation programs on the ground.

- This measure preserves the productive power of Missouri's agricultural land. In over 30 years that the tax has been in place, soil erosion has been reduced by almost half. This helps Missouri family farmers and contributes to the safest, most abundant and most reliable food source in the world.



## Water

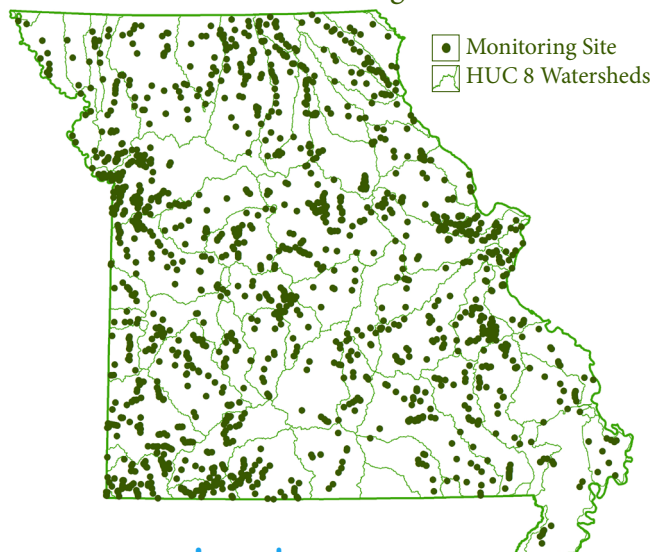
- More than 50 point sources have proactively engaged in the Voluntary Early Nutrient Monitoring Program by reporting monthly nutrient data to the Department of Natural Resources.

- After adoption by the Missouri Clean Water Commission in 2016, the Missouri Water Quality Trading Framework now serves as the department's policy statement on water quality trading.
- A partnership between the department's Soil and Water Conservation Program and the Missouri Corn Merchandising Council is evaluating the effectiveness of several best management practices, including layering practices together on the landscape to increase

effectiveness of nutrient reduction (i.e., adding cover crops to terrace system and no-till). This edge-of-field monitoring project will assist in prescribing the best conservation practices for water quality improvement.

- The department collects surface water data for nutrients from multiple sources statewide. Along with the department, nutrient data is collected by the University of Missouri, U.S. Environmental Protection Agency and U.S. Geological Survey.

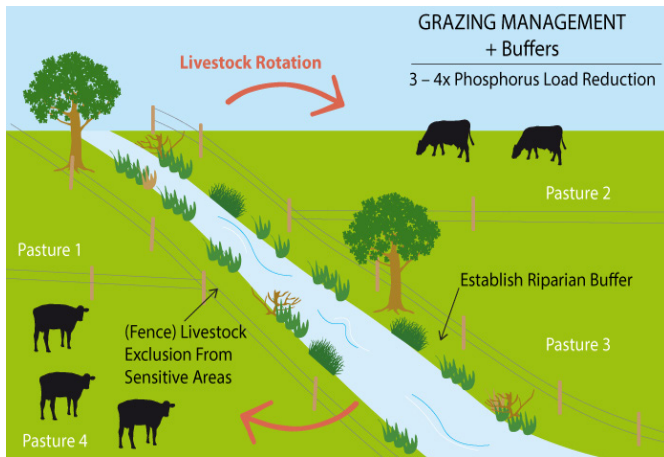
## Missouri Nutrient Monitoring Sites



## Land

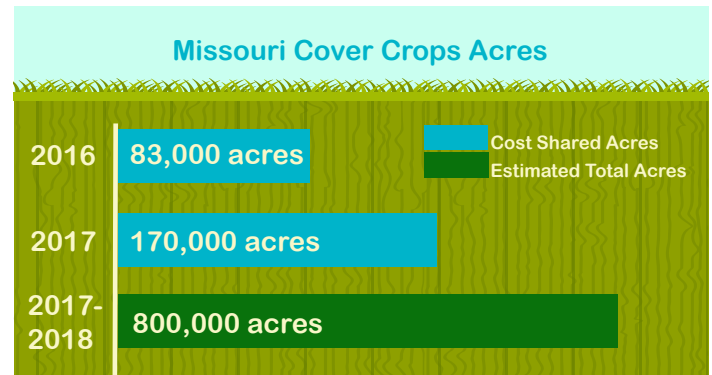
- Since 2014, the department's Soil and Water Conservation Program has awarded more than 1,200 contracts to exclude livestock from ponds and woodlands. The exclusion of livestock from sensitive areas improves water quality while minimizing the amount of land taken out of production.

- Landowners are required to attend grazing school before receiving cost-share funds from state programs for grazing systems. Grazing schools are beneficial to landowners as they learn proper rotation of livestock, nutrient management, and share ideas peer-to-peer.
- The University of Missouri's Soil Health Assessment Center is one of the most robust soil health labs in the country. In partnership with the department, thousands of soil health samples have been collected and analyzed throughout the state. The center provides landowners information on the strengths and weaknesses of their soils' health and function.

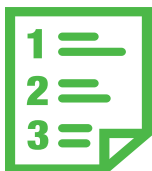


- Through the department's Soil and Water Conservation Program incentives, the adoption of livestock exclusion from riparian areas from 2007 to 2017 was 9,369 acres. Research shows that including a buffer to a rotational grazing system reduces phosphorus load by three to four times.

- Since the first full year of the cover crop practice offered by the program in 2016, the adoption rate has increased from 83,000 acres to an anticipated 170,000 acres in 2018. The department estimates that more than 800,000 acres of cover crops covered the landscape in Missouri during winter of 2017.



- Research shows that installing edge-of-field practices such as denitrifying bioreactors and saturated buffers on farmland can significantly reduce nitrate runoff. The U.S. Department of Agriculture's Natural Resources Conservation Service in Missouri offers technical and financial assistance to agricultural landowners for these two practices. The department's Soil and Water Conservation Program is considering a pilot program for both practices.
- Between the mid-1970s and mid-1980s conversions to agricultural use accounted for 54 percent of wetland loss in the United States. The Wetland Mitigation Banking Program, administered by the NRCS, improves flood attenuation, groundwater discharge and recharge and sediment retention and will help reduce nutrient loss from agricultural fields.



## 2018-2020 Priorities

- **Nutrient Monitoring Program Development and Implementation.** The department is proposing expanded nitrogen and phosphorus monitoring through amendments to the effluent regulation and through the development of a lake nutrient criteria implementation plan.
- **Study to Determine Technology-Based Nutrient Reduction Values.** The department will conduct an analysis of point source dischargers and effluent data to determine the nutrient removal rates of differing technologies.
- **State Cost-Share Program.** The department will continue to incorporate new conservation practices into the State Cost-Share Program that have proven effectiveness in reducing nutrients to water bodies.
- **Missouri's Nonpoint Source Management Plan.** The department will ensure Missouri's Nonpoint Source Management Plan has nutrient loss reduction as a priority.



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